

WHAT IS CLAIMED IS:

1. An arc welding method for subjecting a work to welding by the use of a welding wire, the arc welding method comprising the steps of:

bringing the welding wire into contact with the work while applying a voltage between the welding wire and the work, thereby causing the end of the welding wire to be fixingly welded to the work;

obtaining an electric resistance between the welding wire and the work during the contact between the welding wire and the work, so as to detect a minimum of the electric resistance; and

temporarily reducing the current flowing through the wire after the detection of the minimum of the electric resistance and after a predetermined amount of time has elapsed after detection of the minimum of the electric resistance.

2. The arc welding method according to claim 1, wherein a voltage value and a current value between the welding wire and the work are measured, and thus, the electric resistance between the welding wire and the work is obtained based on the volatage value and the current value.

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3. The arc welding method according to claim 1, wherein the predetermined time is a time required such that the electric resistance between the welding wire and the work reaches an electric resistance obtained by adding to the minimum an electric resistance of 10% or more and 98% or less of a difference between the minimum and a previously obtained maximum of the electric resistance between the welding wire and the work.

4. The arc welding method according to claim 1, wherein the predetermined time is equal to or more than 0.5 ms.

5. The arc welding method according to claim 1, wherein the current is temporarily reduced during a time of about 0.25 ms.

6. The arc welding method according to claim 1, further comprising determining a torch-to-workpiece distance correction value based on the detected minimum of the electric resistance.

7. The arc welding method according to claim 6, further comprising:
adding the torch-to-workpiece distance correction value to a previously determined torch-to-workpiece distance value to obtain an optimum torch-to-workpiece distance, and

adjusting a distance between the welding wire and the work to the optimum torch-to-workpiece distance.

8. An arc welding device for subjecting a work to welding by the use of a welding wire, the arc welding device comprising:

means for applying a voltage between the welding wire and the work;

means for moving the welding wire in such a manner as to bring the welding wire into contact with the work;

means for obtaining an electric resistance between the welding wire and the work during the contact between the welding wire and the work, so as to detect a minimum of the electric resistance; and

means for temporarily reducing the current after the detection of the minimum of the electric resistance and after a predetermined amount of time has elapsed after detection of the minimum of the electric resistance.

9. An arc welding method for subjecting a work to welding by the use of a welding wire, the arc welding method comprising the steps of:

bringing the welding wire into contact with the work while applying a voltage between the welding wire and the work, thereby causing the end of the welding wire to be fixingly welded to the work;

obtaining an electric resistance between the welding wire and the work during the contact between the welding wire and the work;

detecting a minimum of the electric resistance;

storing a value corresponding to the minimum of the electric resistance; and

temporarily reducing the current flowing through the wire after detecting the minimum of the electric resistance and when the electric resistance reaches a level equal to the stored value plus a resistance offset value.

10. The arc welding method of claim 9, wherein the resistance offset value is determined by adding to the minimum of the electric resistance a value equal to about 10% to about 98% of a difference between the minimum of the electric resistance and a previously obtained maximum of the electric resistance between the welding wire and the work.

11. The arc welding method of claim 10, wherein the resistance offset value is determined by adding to the minimum of the electric resistance a value equal to about 50% to about 97% of a difference between the minimum of the electric resistance and a previously obtained maximum of the electric resistance between the welding wire and the work.

12. The arc welding method of claim 11, wherein the resistance offset value is determined by adding to the minimum of the electric resistance a value equal to about 75% to about 95% of a difference between the minimum of the electric resistance and a previously obtained maximum of the electric resistance between the welding wire and the work.

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